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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/473,522      | 12/28/1999  | KENNETH A. PARULSKI  | 78744PRC            | 1080             |

1333 7590 05/20/2004

PATENT LEGAL STAFF  
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EXAMINER

HAMILTON, MONPLAISIR G

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2135

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/473,522

Applicant(s)

PARULSKI ET AL.

Examiner

Monplaisir G Hamilton

Art Unit

2135

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. The communication filed on 3/3/04 amended Claims 1 and 6-10. Claims 1-15 remain for examination.

#### ***Response to Arguments***

2. Applicant's arguments, see Paper No. 6, filed 3/3/04, with respect to the rejection(s) of Claims 1-2, 4 and 6-15 under 35 U.S.C. § 102(e) as being anticipated by Friedman (US 5,499,292) and Claims 3 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Friedman (US 5,499,292) in view of Numata et al (US 6,654,062) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Safai et al (US 6,167,469).

#### ***Claim Objections***

3. Claims 1, 7, 9 and 10 are objected to because of the following informalities:  
private/public key renders the claim indefinite. Appropriate correction is required.

Art Unit: 2135

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 6-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Safai et al (US 6,167,469).

Referring to Claim 1:

Safai discloses a digital camera of the type employing a private key to encrypt a hash of a digital image captured by the digital camera to produce an image authentication signature, the improvement comprising: (a) a processor located within the digital camera for generating a public/private key pair (col 4, lines 1-15; col 7, lines 30-40; Claim 29); and (b) means for storing the private key in a memory in the digital camera for subsequent use in encryption of the hash of the digital image to produce the image authentication signature (col 16, lines 1-10, 20-35).

Referring to Claim 6:

Safai discloses a method of producing an image authentication signature in a digital camera employing a private key to encrypt a hash of an image captured by the digital camera, the improvement comprising the steps of:

Art Unit: 2135

(a) generating the private key in the digital camera (col 4, lines 1-15; col 7, lines 30-40; Claim 29); and

(b) storing the private key in a memory in the digital camera for subsequent encryption of the hash of the digital image (col 16, lines 1-10, 20-35).

Referring to Claim 7:

Safai discloses a method of authenticating an image captured by a digital camera, comprising the steps of:

(a) generating a private key/public key pair in the digital camera (col 4, lines 1-15; col 7, lines 30-40; Claim 29);

(b) storing the private key in a memory in the digital camera (col 16, lines 1-10, 20-35);

(c) communicating the public key to a user (col 4, lines 5-15);

(d) capturing a digital image (col 5, lines 35-45; col 15, lines 60-65);

(e) hashing the captured digital image in the digital camera to produce an image hash (col 16, lines 1-10);

(f) encrypting the image hash in the digital camera with the private key to produce a digital signature (col 16, lines 20-35); and

(g) authenticating the digital image by hashing the image outside of the digital camera, decrypting the digital signature using the public key to produce a decrypted signature, and comparing the decrypted signature with the image hash produced outside of the digital camera (col 16, lines 10-20).

Art Unit: 2135

Referring to Claim 8:

Safai discloses a method of manufacturing a digital camera capable of producing a digital signature useful for image authentication, comprising the steps of:

- (a) manufacturing a digital camera with an internal processor for generating a public/private key pair, storing the public key in a memory in the digital camera and communicating the public key to a camera operator;
- (b) sending the digital camera to an authentication service;
- (c) activating the digital camera at the authentication service to produce the public/private key pair, and registering the public key at the authentication service; and
- (d) sending the digital camera to a user.

Referring to Claim 9:

Safai discloses a digital camera of the type employing a private key to encrypt a hash of a digital image captured by the digital camera to produce an image authentication signature and a metadata signature corresponding to one or more metadata values, the improvement comprising:

- (a) a processor located within the digital camera for generating a public/private key pair (col 4, lines 1-15; col 7, lines 30-40; Claim 29);

and

- (b) means for storing the private key in a memory in the digital camera for subsequent use in encryption of the hash of the digital image to produce the image authentication signature and the metadata signature (col 16, lines 1-10, 20-35).

Art Unit: 2135

Referring to Claim 10:

Safai discloses a method of producing an image authentication signature in a digital camera, comprising the steps of:

- (a) capturing a digital image (col 15, lines 60-65);
- (b) compressing the captured digital image (col 14, lines 15-25);
- (c) generating, a public/private key pair in the digital camera (col 4, lines 1-15; col 7, lines 30-40; Claim 29);
- (d) storing the private key in a memory in the digital camera (col 16, lines 1-10, 20-35);
- (e) providing one or more metadata values (col 16, lines 1-15);
- (f) hashing the compressed captured digital image and at least one of the metadata values to produce an image hash (col 16, lines 1-10); and
- (g) encrypting the image hash to produce the image authentication signature (col 16, lines 20-30).

Referring to Claim 11:

Safai discloses the limitations of Claim 10 above. Safai further discloses storing in an image file in the digital camera, the image authentication signature, the compressed digital image data, and the one or more metadata values (col 12, lines 1-15; col 14, lines 10-25; col 16, lines 1-10).

Art Unit: 2135

Referring to Claim 12:

Safai discloses the limitations of Claim 10 above. Safai further discloses the encrypting step includes encrypting the image hash with a private key produced in the digital camera to produce the image authentication signature (col 16, lines 1-40).

Referring to Claim 13:

Safai discloses the limitations of Claim 10 above. Safai further discloses wherein the encrypting step includes encrypting the image hash with the private key to produce the image authentication signature (col 16, lines 25-40); and further including the step of:

authenticating the captured digital image by hashing the compressed digital image outside of the digital camera, decrypting the image authentication signature using the public key to produce a decrypted signature, and comparing the decrypted signature with the image hash produced outside of the digital camera (col 16, lines 10-25).

Referring to Claim 14:

Safai discloses the limitations of Claim 1 above. Safai further hashing the uncompressed captured digital image to produce a random number k (col 16, lines 1-10); and wherein the encrypting step includes using the random number k to produce the image authentication signature (col 16, lines 20-35).



Art Unit: 2135

Referring to Claim 15:

Safai discloses the limitations of Claim 1 above. Safai further discloses the encrypting step further produces a metadata signature corresponding to the one or more metadata values (col 16, lines 1-10; col 12, lines 50-60).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Safai et al (US 6,167,469) in view of Glass et al (US 6,332,193).

Referring to Claim 2:

Safai discloses the limitations of Claim 1 above.

Safai does not explicitly disclose “the processor includes means for producing a random seed for the private key by hashing an initial test image captured by the digital camera”.

Glass discloses the processor includes means for producing a random seed for the private key by hashing an initial test image captured by the digital camera (col 4, lines 1-10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Safai such that the private key is generated based on sensor information. One of ordinary skill in the art would have been motivated to do this because it would provide a private key that is easily changed and random.

Referring to Claim 3:

Safai in view of Glass disclose the limitations of Claim 2 above. Safai further discloses

- (i) a shutter and an image sensor for capturing images (col 5, lines 30-40);

Art Unit: 2135

- (ii) a variable gain amplifier coupled to the image sensor (col 5, lines 45-60);
- (iii) an analog-to-digital converter coupled to the variable gain amplifier and the processor for producing digital signals corresponding to the captured images (col 5, lines 50-60);
- and
- (iv) the processor causing the variable gain amplifier to be in a high gain condition when the initial test image is captured (col 5, lines 55-60).

Referring to Claim 4:

Safai discloses the limitations of Claim 1 above.

Safai does not explicitly disclose “the processor includes one or more algorithms for producing a random seed, wherein the random seed is used to produce a random number k, and for using the random number k to create the image authentication signature by hashing the raw image data prior to image processing.”

Glass discloses the processor includes one or more algorithms for producing a random seed, wherein the random seed is used to produce a random number k, and for using the random number k to create the image authentication signature by hashing the raw image data prior to image processing (col 3, line 60-col 4, line 15).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Safai such that authentication is applied to an image using a random number. One of ordinary skill in the art would have been motivated to do this because it would allow the user to authenticate the image (col 3, lines 60-65).

Art Unit: 2135

Referring to Claim 5:

Safai in view of Glass disclose the limitations of Claim 4 above. Safai further discloses the processor includes an image processing algorithm which uses JPEG compression (col 14, lines 15-25).

***Prior Art***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5751809 issued to Davis, Derek L. et al. Davis discloses a video camera, a secure data capture device is used to prevent a captured data clip from be fraudulently altered without detection. The secure data capture device performs "time-bracketing" and/or "sequence ordering" operations to preserve data integrity through implementation of two registers incorporating a "State of the Universe" ("SOTU") number and a "sequence" number, respectively. Time-bracketing is performed by digitally signing a running hash value representing the data clip appended to the SOTU number before the digital signature is "timestamped". Sequence ordering is performed by digitally signing the digest of the data frame or multiple data frames along with the sequence number.

***Final Rejection***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2135

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2135

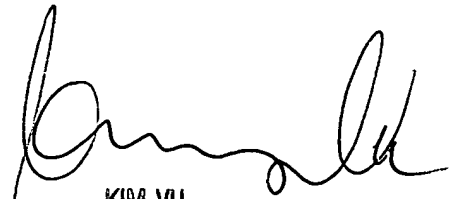
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monplaisir G Hamilton whose telephone number is (703) 305-5116. The examiner can normally be reached on Monday - Friday (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y Vu can be reached on (703) 305-4393. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monplaisir Hamilton



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